DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

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Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 70.28

WELDING INSPECTION REPORT

Resident Engineer: Pursell, Gary
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-006399
Date Inspected: 22-Apr-2009

Project Name: SAS Superstructure
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Contractor: Japan Steel Works

OSM Arrival Time: 730
OSM Departure Time: 1630
Location: Muroran, Japan

CWI Name: Chung Fu Kuan

Inspected CWI report:	☐ Yes	☑ No	☐ N/A	**CWI Present:**	☑ Yes	☐ No	
Electrode to specification:	☑ Yes	☐ No	☐ N/A	**Rod Oven in Use:**	☑ Yes	☐ No	☐ N/A
Qualified Welders:	☑ Yes	☐ No	☐ N/A	**Weld Procedures Followed:**	☑ Yes	☐ No	☐ N/A
Approved Drawings:	☑ Yes	☐ No	☐ N/A	**Verified Joint Fit-up:**	☐ Yes	☑ No	☐ N/A
				Approved WPS:	☑ Yes	☐ No	☐ N/A
				Delayed / Cancelled:	☐ Yes	☑ No	☐ N/A

Bridge No: 34-0006
Component: Tower, Jacking, and Deviation Saddles

Summary of Items Observed:

On this date Caltrans OSM Quality Assurance (QA) Inspector Mr. Art Peterson was present during the times noted above for observations relative to the work being performed in Fabrication shop #4 and the Foundry shop at Japan Steel Works.

Fabrication Shop #4

Machining Operation of Saddle: Tower Saddle Segment T1-1 (cast section welded to steel section)

The QA Inspector observed that tower saddle segment T1-1 is located in Machine Shop #4 to have the final machining performed. On this date, the QA Inspector observed JSW personnel re-positioning the saddle segment to perform machining on another location of the saddle segment.

Machining Operation of Saddle: West Deviation Saddle Segment W2-E2 (cast section welded to steel section)

The QA Inspector observed that west deviation saddle segment W2-E2 is located in Machine Shop #2. On this date, the QA Inspector observed that no machining was performed.

Machining Operation of Saddle: West Deviation Saddle Segment W2-E1 (cast section welded to steel section)

The QA Inspector observed that west deviation saddle segment W2-E1 is located in Machine Shop #2 to have the lifting lugs machined /milled off. On this date, the QA Inspector observed JSW personnel were milling the lifting lugs off of the edge of the ribs.

Storage of Saddle: Tower Saddle Segment T1-3 (steel section)

The QA Inspector observed that tower saddle segment T1-3 (steel section) is located in Fabrication Shop #4 for

storage until tower saddle segment T1-3 (cast section) is ready for the fit-up operation. On this date, the QA Inspector observed that no work was performed on the (steel section) of the saddle segment.

Welding Operation of Saddle: West Deviation Saddle Segment W2-E3 (cast section to steel section)
The QA Inspector observed the partial-joint penetration groove weld operation on the stem plate (steel section) to stem plate (cast section) of west deviation saddle segment W2-E3. The QA Inspector observed QC Inspector Mr. Chung Fu Kuan verify prior to and during the welding operation that the minimum preheat temperature of 160 degrees Celsius was maintained and the welding parameters of JSW welding personnel Mr. T. Watanabe (08-5169) on weld joint no. E3S-2U (between plate 3-4 and plate 3-9) and Mr. M. Yamashita (73-4195)on weld joint no. E3S-2U (between plate 3-13 and 3-17) were in compliance with WPS SJ-3011-1 per the SMAW process in the (2G) horizontal position using (4.8) mm diameter E9018M electrode. The QA Inspector observed that the partial-joint penetration groove weld operation was in process at the end of the QA Inspectors' shift.

Layout Operation on Saddle: West Deviation Saddle Segment W2-W1 (steel section)
The QA Inspector observed JSW personnel Mr. K. Koyanagi performing the layout (scribe line) operation of where the excess material was located on the base plate of west deviation saddle segment W2-W1 (steel section). The excess material on the base plate was where the temporary attachments were located / welded to the base plate when the saddle segment was loaded in the fixture and afterwards the temporary attachments were removed by the air-carbon arc gouge process from the base plate. The saddle segment was re-located to a different location in the fabrication shop. Afterwards, the JSW personnel will perform the trimming operation (either cutting or grinding) of the excess material from the base plate to the scribe line location. The QA Inspector observed that the layout operation was in process at the end of the QA Inspectors' shift.

NDT Operation of Saddle: Tower Saddle Segment T1-2 (cast section welded to steel section)
The QA Inspector observed NIS QC NDT personnel Mr. K. Kobayashi (#141) and Mr. M. Sato (#81) performing the magnetic particle test (MPT) inspection (dry method) on the partial-joint penetration groove welds on the rib plate (cast section) to rib plate (steel section) and the ultrasonic test (UT) inspection and MPT inspection on the complete-joint penetration groove welds on the rib plate (cast section) to rib plate (steel section) of tower saddle segment T1-2. The MPT and UT inspection was in accordance with AWS D1.5-2002 Figure 6.9 and Table 6.4, respectively. The QA Inspector was informed by Quality Control Inspector Mr. Chung Fu Kuan that after the NDT operation is completed then the next operation to be performed on tower saddle segment T1-2 is the post weld stress relief heat treatment operation. The QA Inspector observed that the NDT operation was in process at the end of the QA Inspectors' shift.

Welding Operation on Saddle: West Deviation Saddle Segment W2-W2 (steel section)
The QA Inspector observed the partial-joint penetration groove weld operation on the stem plate to base plate portion of west deviation saddle W2-W2. The QA Inspector observed QC Inspector Mr. Chung Fu Kuan verify prior to the start and during the welding operation that the preheat temperature of 160 degrees Celsius was maintained and the welding parameters of JSW welding personnel Mr. T. Inoue (08-5163) on weld joint no. W2-S-2L between (plate 5-16 and plate 5-14) and Mr. M. Inoue (92-5683) between (plate 5-10 and plate 5-12) were in compliance with WPS SJ-3011-1 per the FCAW process in the (1G) flat position using (1.6) mm diameter TM 95K2 electrode. The QA Inspector observed that the partial-joint penetration groove weld operation was in process at the end of the QA Inspectors' shift.

Machining Operation of Saddle: Tower Saddle Segment T1-3 (cast section)

The QA Inspector observed that tower saddle segment T1-3 (cast section) is located in Machine Shop #4 to have the machining operation performed on the square portion (cast side) of the double bevel groove butt joint welds of the ribs and stems. Previously, JSW welding personnel performed the weld surfacing (buttering operation) on the square edges of the rib and stem of the saddle (cast section) per the SMAW process using LB52A E7016 electrode. The QA Inspector observed that the machining operation was in process at the end of the QA Inspectors' shift.

Storage of Saddle: West Deviation Saddle Segment W2-W1 (cast section)

The QA Inspector observed that west deviation saddle segment W2-W1 (cast section) is located in Fabrication Shop #4 for storage until west deviation saddle segment W2-W1 (steel section) is fabricated and ready for the fit-up operation. The NIS QC NDT personnel still need to perform magnetic particle test (MPT) inspection on the remaining portions of the as finished surfaces of the cast section by the wet method. A total of 10% MPT inspection has been completed by the NIS QC NDT department. On this date, the QA Inspector observed that no work was performed on the saddle segment (cast section).

Foundry Shop:

Storage of Saddle: West Deviation Saddle Segment W2-W2 (cast section)

The QA Inspector observed that west deviation saddle segment W2-W2 (cast section) is located in the Foundry Shop for storage until west deviation saddle segment W2-W2 (steel section) is ready for the fit-up operation. On this date, the QA Inspector observed that no work was performed.

Grinding Operation on Saddle: East Saddle E2-E1

The QA Inspector observed that JSW personnel were performing the grinding operation of the shaped areas on the outside of the trough section and on the rib sections where the excess removal of cast material-(scarfing operation by the air-carbon-arc method) on the rough casting was performed on east saddle E2-E1. The purpose of the grinding operation is to profile the areas to a smooth finish and subsequently the NDT operation. The QA Inspector observed that the grinding operation was in process at the end of the QA Inspectors' shift.

NDT Operation on Saddle: East Saddle E2-W1 (cast section)

The QA Inspector observed NIS QC NDT Personnel Mr. H. Kohama (#86) was performing ultrasonic test (UT) inspection on the rib section and trough section on the outside of east saddle E2-W1. The UT inspection was performed in accordance with ASTM A609M and to the acceptance quality levels in Table 2 of ASTM A609M. The ultrasonic testing quality level (1) is for within (30) mm of the interior and exterior surface for the full length of the trough as shown on the plans and ultrasonic testing quality level (3) for areas outside of (30) mm of the surface as shown on the the plans. The areas inspected were marked with (300 x 300) mm grid lines on the outside of the trough for the purpose of tracking and guidance in scanning. The QA Inspector observed that the UT inspection was in process at the end of the QA Inspectors' shift.

NDT Operation on Saddle: West Deviation Saddle Segment W2-W3 (cast section)

The QA Inspector observed that JSW personnel performed and completed the cleaning operation- (blast cleaning) on west deviation saddle W2-W3 (cast section). The cleaning operation was performed prior to NIS QC NDT personnel performing the NDT (liquid penetrant test , magnetic particle test, and ultrasonic test) inspection. The QA Inspector was informed by JSW Representative Mr. Hideaki Kon that the layout (placement of grid lines) on the saddle segment (cast section) for the NDT inspection would be started sometime during the week of April 27th

2009.

Machining Operation of Saddle: West Jacking Saddle (cast section)

The QA Inspector observed that the west jacking saddle (cast section) is located in Machine Shop #4 to have the rough machining of the base plate, inside of the trough, and on the end sections of the west jacking saddle. On this date, the QA Inspector observed that the machining operation was being performed on inside of the trough section surfaces of the west jacking saddle.

Unless otherwise noted, all observations reported on this date appeared to be in general compliance with applicable contract documents.

Summary of Conversations:

No significant conversations were reported on this date.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Nina Choy, 510 385-5910, who represents the Office of Structural Materials for your project.

Inspected By:	Peterson,Art	Quality Assurance Inspector
Reviewed By:	Lanz,Joe	QA Reviewer